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LETTER TO THE EDITOR

Reply: Dengue RT-PCR-positive, Chikungunya IgM-positive and Zika RT-PCR-positive co-infection in a patient from Colombia

We have read with interest the letter of Faccini-Martinez and colleagues [1], which clearly suggests that our case [2] does not necessarily correspond with a triple coinfection, but instead could represent Zika virus infection with cross-reactivity for both Dengue and Chikungunya viruses. Although we agree with some of the comments in this letter, its final conclusions are misleading and should be addressed and clarified with further information.

Regarding Dengue virus, the RT-PCR findings for dengue in this patient were not available at the time when this manuscript was submitted. These test results arrived at a later date and were positive. Thus, we confirmed infection by Dengue and Zika viruses in this patient by RT-PCR.

Second, Chikungunya virus belongs to the family Togaviridae and genus Alphavirus, which are completely different from those of the Dengue and Zika viruses, which both belong to the family Flaviviridae and genus Flavivirus [3]. Additionally, no previous studies have reported any cross-reactivity between Chikungunya virus and Flaviviruses. The reference cited by Faccini-Martinez is inappropriate [4] because it is a case report of three fatal cases of Chikungunya virus infection that were Dengue IgM-positive but RT-PCR-negative, which could have been affected by when the samples were obtained from the patients. After one week, there is no longer any viremia and the RT-PCR tests will always yield negative results. Moreover, that previous study was not a diagnostic comparative study that assessed immunoglobulin cross-reactivity among patients with viremia and the post-viremia phase by RT-PCR between Dengue and other Arboviruses. The post-infection time (with viremia) for making a diagnosis is also crucial for these arboviral infections and can inform assessments of seroconversion.

Finally, it is important to consider the clinical definition. Clinical definitions of Dengue, Chikungunya and Zika virus infections should be considered in addition to laboratory results, which should be considered for both clinical practice and public health reasons. Moreover, for public health purposes, the National Institute of Health in Colombia has defined ''confirmed by clinical definition'' for most cases (i.e., not in risk groups) [5] because RT-PCR is not available or affordable for all cases of these emerging arboviral diseases, particularly Zika virus. In our present case, the patient exhibited fever, maculopapular pruritic exanthema, and non-purulent conjunctival injection, which fits with the clinical definition of Zika virus infection [6,7]. Nevertheless, in coinfection cases, such as that of our present report, signs and symptoms of other etiological agents should induce additional clinical symptoms, although asymptomatic cases have been reported. As we reported previously [8], additional research is necessary for this virus as it is causing national and regional epidemics that have serious implications and is the subject of a recent WHO Emergency Declaration [9,10]. Indeed, in Colombia, from October 2015 to March 2016, more than 48,000 cases have been reported (although only cases were confirmed by RT-PCR). Rapid and accurate serological tests are needed for the diagnosis of Zika virus infection.

We thank Faccini-Martinez and colleagues for the opportunity to clarify our case report and also to discuss additional aspects of Zika virus infections considering the ongoing epidemics in Colombia and Latin America. Indeed, Dengue and Chikungunya viruses are currently co-circulating in this region and other cases of coinfections between these pathogens are certainly occurring.

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Competing interests

The authors have no conflict of interests to disclose.

Ethical approval

Not required.

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